

Bicycling *Pathway to the Future*

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The 1990s were a period of extraordinary change in the U.S. bicycle field. As the decade began, federal spending on bicycle facilities averaged a few million dollars annually; the U.S. Department of Transportation (DOT) had no staff working full-time on bicycle issues and no real strategy for dealing with those issues; fewer than 10 states and 25 cities had a bicycle coordinator position, and none had an equivalent pedestrian staff person. The 1990 Pro Bike Conference in Washington, D.C., was attended by fewer than 250 people. Little bicycle-related research had been done since the end of the 1970s.

As the decade draws to a close, average federal spending on bicycle and pedestrian facilities exceeds \$260 million annually. U.S. DOT has staff working on bicycle and pedestrian issues in most of its agencies [Office of the Secretary of Transportation, Federal Highway Administration (FHWA), National Highway Traffic Safety Administration, Federal Transit Administration, and the Federal Railroad Administration]. In addition, U.S. DOT has set ambitious national goals for bicycling and walking (National Bicycling and Walking Study, 1994), is nearing completion of a multiyear bicycle and pedestrian research program, has elevated bicycle and pedestrian safety to priority status, and has published a wide range of related technical and promotional literature. Every state is required by law to have a bicycle and pedestrian coordinator, and dozens of cities and counties have full-time bicycle and pedestrian staff. Moreover, all the major professional associations [American Pedestrian Association, Institute of Transportation Engineers, Transportation Research Board (TRB), American Society of Civil Engineers] have bicycle or pedestrian technical committees, or both; more than 500 people attended the 1998 Pro Bike/Pro Walk conference; and an association exclusively for bicycle and pedestrian professionals—the Association of Pedestrian and Bicycle Professionals—has been formed.

Public opinion and attitudes toward bicycling have undergone an equally dramatic transition. Known by the unglamorous nickname of the “forgotten modes” in the 1980s, bicycling and walking have evolved to become emblems of a high quality of life. Major advertisers sell products ranging from breakfast cereals to financial services by using images of bicycling; bicycle sales have boomed throughout the decade; professional football stars promote bicycle safety during the Super Bowl; home buyers want access to walking and bicycling trails more than golf courses and swimming pools; and “livable communities” designed to accommodate these modes are a major new focus of the architecture, landscape architecture, planning, health promotion, and transportation professions.

The unprecedented growth of interest in bicycling has been matched by greater opportunities to improve access and safety for bicyclists through funding and planning, as well as a rapid increase in the expertise and professionalism of the growing number of

people involved in the field. There has also been a concomitant increase in the need for information that can help translate the desire to improve conditions for bicycling into tangible programs and projects aimed at reducing injuries and fatalities among bicyclists, and at expanding use of the mode for everyday as well as recreational travel.

Bicycling by the Numbers

2 miles: average length of bicycle trip (1)
 39.6 percent: trips by all modes that are 2 miles or less (1)
 53 percent: increase in all trips 1990–1995 (1)
 89 percent: increase in bicycle trips 1990–1995 (1)
 80.6 million: people who rode a bicycle in 12 months preceding August 1998 (2)
 761: bicyclists killed in traffic crashes in 1998 (3)
 38 percent: adult bicycle riders regularly wearing a helmet, August 1998 (2)
 69 percent: children under 16 regularly wearing a helmet, August 1998 (2)
 15.5 million: bicycles sold in the United States in 1996 (4)
 \$5.2 billion: approximate retail value of U.S. bicycle market in 1996 (4)

FUTURE PROSPECTS

As the new millennium dawns, the future for bicycling as a component of the transportation system looks bright. Bicycling is a healthy, clean, efficient, and economical means of transport that offers the rider speed and flexibility over short distances and can be accommodated with relatively little space. Bicycling is accessible to a great many people who cannot drive, especially the young. The activity is popular and is capable of generating significant economic returns to communities that choose to promote appealing riding conditions and services. In addition, improved prospects for bicycling are resulting from developments in such key areas as updated technical information, renewed national policy support, and heightened awareness.

Updated Technical Information

- The American Association of State Highway and Transportation Officials has published a new *Guide to the Development of Bicycle Facilities* (5) that significantly expands the amount of technical information available to planners and designers of bicycle facilities.
- Part IX of the *Manual of Uniform Traffic Control Devices* (6) is being overhauled with the cooperation of a newly formed bicycle task force; the National Committee on Uniform Traffic Control Devices recently welcomed its first bicycling organization—the League of American Bicyclists—as a voting member.
- The National Committee on Uniform Traffic Laws and Ordinances has also established a bicycling task force and is updating relevant sections of the Uniform Vehicle Code to reflect the evolving status of the bicycle.

Renewed National Policy Support

- The Transportation Equity Act for the 21st Century (TEA-21) expanded opportunities to integrate bicycling projects and programs into the planning and funding of transportation infrastructure, including making bicycle improvements eligible for the Hazard Elimination (safety construction) program.

- TEA-21 also required U.S. DOT to study various approaches to accommodating bicycle travel. The resulting report endorses the policy approach of establishing bicycle and pedestrian ways in new construction and reconstruction projects unless doing so would be contrary to public safety, excessively costly, or unnecessary because of sparse population.

- FHWA has issued guidance on the bicycle-related provisions of TEA-21 whereby “every transportation agency [is expected] to make accommodation for bicycling...a routine part of their planning, design, construction, operations, and maintenance activities.”

- FHWA has also renewed its commitment to the goals emerging from the National Bicycling and Walking Study of doubling the proportion of trips made by foot and bicycle in the United States to 15 percent and simultaneously reducing fatalities and injuries to these users by 10 percent.

Heightened Awareness

In June 2000, more than 2,000 local trails (shared-use paths) will be designated as Millennium Trails as part of the White House Millennium Initiative. These community trails, together with 50 Millennium Legacy Trails and 16 National Millennium Trails designated in 1999, will serve to highlight the transportation benefits of bicycling and walking with the backing of the First Lady of the United States and the Secretary of Transportation.

OBSTACLES

All of the developments outlined above will assist in the creation of a more bicycle-friendly infrastructure at the local level, where increasing numbers of cities and metropolitan planning organizations are adopting and implementing bicycle plans, hiring bicycle program staff, and encouraging bicycling as a means of transport. However, it is still too soon to declare the bicycle the vehicle of the third millennium. Bicycling remains a relatively minor means of travel in all but a handful of U.S. communities and faces many significant obstacles before it can break through as a mainstream transportation mode.

Bicycling Is Largely Invisible

Few of the basic planning tools used by state and local agencies (e.g., planning models and forecasting tools) incorporate bicycling data because such data are sparse. The U.S. Census data that do exist and are available by census tract focus exclusively on the journey to work. Journeys to work by all modes account for just one in five of all trips and an even smaller proportion of bicycling trips.

Data from the Nationwide Personal Transportation Survey are readily available only at the national level, not the state and local levels, and few communities have gathered their own data on bicycle use and patterns. As a consequence, only limited information is available on levels of bicycling, bicyclists' habits and preferences, and their exposure to danger. Although efforts to develop forecasting tools and exposure measures for bicycling are under way in some communities, this lack of basic information is hindering progress.

U.S. DOT has identified six areas in which better documentation of bicycling and walking is necessary (7):

- Development of a method for accurately recording bicycle and pedestrian trips;
- Development of a method for measuring and tracking bicyclist and pedestrian exposure rates;
- Measurement and tracking of bicycle helmet use rates;
- Capture of expenditure information for bicycle and pedestrian projects and programs;
- Improvement of the 2000 Nationwide Personal Transportation Survey instrument to generate better data on bicycle and pedestrian activity, and detailed analysis of the results; and
- Determination of the impact of bicycle and pedestrian investments on air quality, public health, and other quality-of-life indicators.

Responsibility for Bicycling Issues Is Split

One of the most positive aspects of bicycling is the role it can play in so many aspects of everyday life. However, the fact that bicycling relates to transportation, recreation, health and safety, environment, energy, community development, and tourism can also be detrimental as no one agency or body takes responsibility for the creation of an overall bicycle-friendly environment.

Bicycling Is a Local Solution

The majority of bicycle trips are quite short and are affected most directly by very local traffic conditions. However, transportation planning and funding decisions are made largely at the regional or state level (even though they reflect a composite of local issues), and the decision makers have tended to overlook small, local improvements to the street environment that would make bicycling safer, more convenient, and more appealing.

Urban Sprawl Makes Bicycling Less Viable

The seemingly inexorable flight of people and jobs from urban areas to suburban and exurban areas poses a significant threat to the long-term viability of bicycling as a means of travel. Suburban development has typically increased individual trip distances for bicycling and failed to accommodate bicycles in roadway design. In addition, the dispersion of destinations characteristic of suburban areas has increased the need for trip chaining and reduced the likelihood that bicycling will be an option for many trips. While individual destinations within a suburban area may all be within a manageable distance from home or work, the combined distance of a multidestination trip may make travel by bicycle unrealistic for the casual cyclist.

Technical Issues Remain Unresolved

Although there has been tremendous progress in the planning and design of roadways to accommodate bicyclists, there are still significant knowledge gaps in such areas as the accommodation of bicyclists at intersections; the safety of bicyclists at roundabouts; and the use of colored pavement markings, bicycle signal heads, and other bicycle-specific traffic control devices. The results of decades of experience from European and other countries (e.g., Denmark, Germany, the Netherlands, Japan, Australia, China) remain

untried in the United States because of a lack of access to foreign-language research and an unwillingness to accept “other people’s” solutions.

Bicycling Suffers a Credibility Problem

For too many Americans, bicycling already appears to be an unlikely option for everyday travel. The obstacles described above, especially sprawl, threaten to make the mode even less accessible and desirable, even though a majority of Americans say they want to bicycle more and would ride more often if conditions were better (8). For bicycling to thrive, it must be perceived as a practical, feasible alternative to driving.

NEW DIRECTIONS

Bicycling in the United States has the potential to play a significantly greater role in everyday transportation than is currently the case. More than one-quarter of all trips in the United States are still less than 1 mile, and almost one-half are 3 miles or less—a 15- to 20-minute bike ride. Thus the potential is there. The goals of the National Bicycling and Walking Study could be met if every adult in the United States walked or bicycled for just three of the trips made each week that are currently made by automobile. Indeed, there are some hopeful signs that this potential can be realized.

Integrated Roadway Design

In states such as Florida and Oregon and many of the communities within those states, virtually all new and improved roads automatically incorporate accommodations for bicyclists. In urban areas, arterial and collector streets routinely feature striped bicycle lanes, residential roads are managed to keep vehicle speeds more compatible with bicycling, and facilities are in place so that bicycles can be parked securely at trip’s end. Where appropriate, trail and greenway corridors are used to supplement on-road opportunities for bicycling. It appears that this approach, endorsed by the U.S. DOT bicycle and pedestrian design study mandated by TEA-21, will become the standard for good highway design early in the new millennium.

Focus on Speed and Safety

Bicyclists are overrepresented in crash statistics, yet safety improvements for bicyclists have historically received little funding or attention. Bicyclists and pedestrians together account for 14 percent of traffic fatalities, only 7 percent of trips, and less than 1 percent of safety-related construction funds. As this discrepancy becomes apparent, and with safety guiding the actions of many federal, state, and local agencies, the new millennium will see a much greater emphasis on protecting these most vulnerable road users. Awareness of the critical role of speed in the incidence and severity of crashes will grow, prompting greater interest in bicycle-compatible traffic calming.

Education for All Ages, All Modes, All Professions

Planners and traffic engineers are increasingly being taught how to plan and design transportation facilities with the bicyclist in mind as part of their graduate and undergraduate courses. As the new millennium dawns, comprehensive bicycle education programs for elementary school children, their parents, and their teachers will start to be included in the regular school curriculum, following the lead taken by school districts in Texas and Southern California.

Technology Transfer

The need for up-to-date, practical, and accessible information on all aspects of bicycle-friendly communities is growing along with the number of people in the field. Fortunately, TEA-21 established a national Pedestrian and Bicycle Technical Information Center to collect, synthesize, and disseminate information on engineering, encouragement, enforcement, and education strategies related to bicycling and walking. This center should become a critical resource for professionals.

Globalization

In June 2000, the international bicycling community will meet in Amsterdam, the Netherlands, for the second World Bicycle Conference (Velo Mondiale 2000). This conference provides a unique opportunity for a significant cross section of U.S. practitioners to visit a developed nation where bicycling has been integrated into the transportation system and where nearly one-third of all trips are made by bicycle. The conference also fosters greater awareness and appreciation of the work done in other nations to research bicycle-related issues, thereby encouraging a greater investment in the translation and use of foreign-language research in the field.

New Beginning in Bicycle Research

The year 1999 marked the culmination of FHWA's 5-year bicycle research program, publication of a set of research problem statements by the TRB Committee on Bicycling, unprecedented interest in bicycle-related topics at the state and local levels, and improved funding opportunities for research at the national and state levels. As the 21st century dawns, there is a compelling need to establish a national strategic research program in bicycle transportation in the United States to address the large gaps in knowledge identified above.

CONCLUSION

A final requirement if bicycle travel is to reach its full potential in the third millennium is the very 20th-century activity of marketing. Although Americans say they want to ride bicycles more for both personal and work travel, few believe bicycling is a real option for them today. While planners and engineers are more likely than ever to consider bicycling as they plan and design the transportation system for the next generation, special lanes and other facilities for bicyclists too rarely leave the drawing board. Politicians and policy makers include bicycling in the rhetoric of sustainable communities and healthy cities, but few turn those policy statements into action.

In the first decade of the 21st century, bicycling must be bolstered by more research, continued funding, education initiatives, and other activities described above. But it must also be elevated in the minds of the American public, among the professional transportation community, and in the realm of public policy to the point where people believe bicycling can really make a difference, and that it is a worthwhile investment in the future.

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